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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/993,378	11/14/2001	James P. O'Connell	269/050	1356

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EXAMINER

KOSSON, ROSANNE

ART UNIT PAPER NUMBER

1651

DATE MAILED: 07/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/993,378

**Applicant(s)**

O'CONNELL, JAMES P.

**Examiner**

Rosanne Kosson

**Art Unit**

1651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date: _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The information disclosure statement (IDS) filed on March 11, 2002 lists document IY (Yuqiu) which is not present in the application file to which Applicants refer. Applicants may wish to provide a copy of this reference in order to have it considered.

Similarly, the IDS filed on May 17, 2004 lists a published PCT application and 11 non-patent literature references. These references are not present in the application file to which Applicants refer. Applicants may wish to provide a copy of these references in order to have them considered.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 1 recites a method for analyzing particles comprising the steps of electrokinetically moving the particles and then subjecting the particles to optical forces for analysis. This method is not disclosed in the specification. Although methods of

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moving particles by electrokinetic forces, such as optical gradients and dielectrophoresis, are disclosed, no methods of analyzing the moved particles are disclosed.

Further, claims 1-13 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The feature of analyzing particles after moving them, which is critical or essential to the practice of the invention, but not included in the claim(s), is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The specification discloses methods of using optical lasers or focused optical beams to move and separate mixtures of particles based on differences in their optophoretic properties, but the specification does not disclose any methods of analyzing moved or separated particles. As a result, the specification provides no guidance for analyzing particles moved by electrokinetic forces. One of skill in the art would not be able to practice the invention without an undue amount of experimentation to develop such a method. Therefore, a holding of non-enablement is required.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites, in circular fashion, a method of analyzing particles by subjecting the particles to optical forces for analysis but does not recite an analytical step. The claim does not recite how the particles are analyzed.

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Because the preamble of claim recites merely a method of analyzing particles, it is not clear to one of skill in the art what the claimed method of analysis is meant to measure or distinguish, i.e., how it is meant to be used. The metes and bounds of the claim are unclear, and it cannot be determined what Applicants intend to include in or exclude from the claim. Thus, a holding of indefiniteness is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 5 and 7-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Parton et al. (U.S. 5,993,631). Parton discloses a method of analyzing particles separated by particle type from a mixture of particles, in which the mixture is illuminated with a light source attached to a microscope and subjected to traveling wave field migration electrophoresis (TWFM) in a chamber containing an array of electrodes. The chambers have planar surfaces and tubular channels along which the particles move. The particles are tagged with labeled ligands (e.g. fluorophore or chromophore labels) that alter the field migration properties of the different particles, allowing separation.

The different particle types are analyzed by a spectrophotometer, flow cytometer, phase contrast detector, acoustic impedance detector, or electrical impedance, capacitance or inductance detector set to detect the particles' signals (see column 2, line 39, to column 3, line 12; column 3, lines 54-60; column 4, lines 47-60; column 6, line 45, to column 8, line 41). Applicants should note that Parton is applied under 102(b) because the subject matter of the rejected claims was first disclosed in the instant application filed on November 14, 2001. This date is more than one year after the publication date of the reference, which was published on November 30, 1999.

Claims 1, 2, 4, 8 and 12-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Käs et al. (U.S. 6,067,859). Käs discloses a method of separating a mixture of particles in which the particles are subjected to two sources of tunable laser light in a dielectric medium. The interaction of the light with the dielectric medium produces forces that result in differential movement of particles by type due to the particles' different dielectric properties. The medium flows through a unit containing tubular channels. The different types of particles may be detected by a Coulter counter, phase contrast microscope or conductance meter (see column 1, lines 42-51; column 4, line 65, to column 5, line 23; column 5, line 66, to column 6, line 14; column 7, line 37, to column 8, line 42). Applicants should note that Käs is applied under 102(b) because the subject matter of the rejected claims was first disclosed in the instant application filed on November 14, 2001. This date is more than one year after the publication date of the reference, which was published on May 30, 2000.

Claims 1-3, 5 and 7-10, 12 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Allbritton et al. (U.S. 6,156,576). Allbritton discloses a method of separating particles, in particular, particles derived from cells, by contacting the cells with shock waves, a moving optical gradient field, from a laser microbeam whose position and strength may be varied. The particles, which may be fluorescently labeled, are separated by electrophoresis, or capillary electrophoresis, and analyzed by a fluorescence detector (see column 3, lines 34-57; column 4, lines 13-18, 30-37 and 56-62; column 10, line 30, to column 11, line 34). Capillary electrophoresis units contain electrodes and surfaces that are tubular channels, while electrophoresis units contain electrodes and planar surfaces.

Claims 1, 2 and 5-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Quake et al. (WO 99/61888). Quake discloses a method of separating a mixture of cells labeled with a chromophore, either visible or UV, or fluorophore, in which the cells are placed in a dielectric medium and there exhibit different dielectric properties according to cell type. When an electric field is applied, the cells are separated according to type, due to their differing abilities to move through the medium. Manipulation of cells can be performed in a streaming fluid of the dielectric medium. Optical tweezers can be used to trap and move objects, e.g., cells, with focused beams of light such as lasers. The different cells are analyzed by fluid flow through fluorescence, color or UV detectors (see p. 4, line 20, to p. 5, line 11; p. 23, line 5, to p. 27, line 20; p. 37, line 24, to p. 41,

line 9). Figures 4 and 5 show that the separation units contain channels with planar surfaces and electrodes, or an array of electrodes. Applicants should note that Quake is applied under 102(b) because the subject matter of the rejected claims was first disclosed in the instant application filed on November 14, 2001. This date is more than one year after the publication date of the reference, which was published on December 2, 1999.

Thus, in view of Parton et al., Käs et al., Allbritton et al. and Quake et al., claims 1-13 are anticipated by the prior art, and a holding of anticipation with respect to all of the claims is required.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rosanne Kosson whose telephone number is 571-272-2923. The examiner can normally be reached on Monday-Friday, 8:30-6:00, with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rosanne Kosson  
Examiner  
Art Unit 1651

rk  
2004-07-13



FRANCISCO PRATS  
PRIMARY EXAMINER